WHAT IS CLAIMED IS:

1. A method of protecting a subject against contracting a viral infection comprising administering, to the subject, an effective amount of an agent which increases the level of MDA-5 protein activity in the subject.

2. The method of claim 1, where the viral infection is caused by a virus which produces a viral helicase.

3. The method of claim 1, where the viral infection is caused by a virus which does not produce a viral helicase.

4. The method of claim 1, wherein the agent is a MDA-5 protein.

5. The method of claim 4, where the MDA-5 protein comprises a protein having an amino acid sequence as set forth in SEQ ID NO:2.

6. The method of claim 2, wherein the agent is a MDA-5 protein.

7. The method of claim 6, where the MDA-5 protein comprises a protein having an amino acid sequence as set forth in SEQ ID NO:2.

8. The method of claim 3, wherein the agent is a MDA-5 protein.

9. The method of claim 8, where the MDA-5 protein comprises a protein having an amino acid sequence as set forth in SEQ ID NO:2.

10. The method of claim 1, wherein the agent is an *mda*-5 nucleic acid, in expressible form.

11. The method of claim 10, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

12. The method of claim 10, wherein the *mda*-5 nucleic acid comprises a nucleic acid which is capable of hybridizing, under stringent conditions, to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

13. The method of claim 2, wherein the agent is an *mda*-5 nucleic acid, in expressible form.

14. The method of claim 13, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

15. The method of claim 13, wherein the *mda*-5 nucleic acid comprises a nucleic acid which is capable of hybridizing, under stringent conditions, to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

16. The method of claim 3, wherein the agent is an *mda*-5 nucleic acid, in expressible form.

17. The method of claim 16, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

18. The method of claim 16, wherein the *mda*-5 nucleic acid comprises a nucleic acid which is capable of hybridizing, under stringent conditions, to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

19. The method of claim 1, wherein the agent increases the activity of an *mda*-5 promoter and is not an interferon.

20. The method of claim 19, wherein the agent is tumor necrosis factor alpha.

21. The method of claim 19, wherein the agent is poly(I)(C).

22. The method of claim 2, wherein the agent increases the activity of an *mda*-5 promoter and is not an interferon.

23. The method of claim 22, wherein the agent is tumor necrosis factor alpha.

24. The method of claim 22, wherein the agent is poly(I)(C).

25. The method of claim 3, wherein the agent increases the activity of an *mda*-5 promoter.

26. The method of claim 25, wherein the agent is an interferon.

27. The method of claim 25, wherein the agent is beta interferon.

28. The method of claim 1, wherein the agent increases the RNA degradation activity of MDA-5 protein.

29. The method of claim 1, wherein the agent increases the ATPase activity of MDA-5 protein.

30. The method of claim 1, further comprising administering, to the subject, an interferon in an amount such that the combined effects of interferon and agent confer protection against viral infection.

31. The method of claim 1, further comprising administering to the subject an antiviral agent in an amount such that the combined effects of the antiviral agent and the agent confer protection against viral infection.

32. A method of limiting a viral infection in a subject comprising administering, to the subject, an effective amount of an agent which increases the level of MDA-5 protein activity in the subject.

33. The method of claim 32, where the viral infection is caused by a virus which produces a viral helicase.

34. The method of claim 32, where the viral infection is caused by a virus which does not produce a viral helicase.

35. The method of claim 32, wherein the agent is a MDA-5 protein.

36. The method of claim 35, where the MDA-5 protein comprises a protein having an amino acid sequence as set forth in SEQ ID NO:2.

37. The method of claim 33, wherein the agent is a MDA-5 protein.

38. The method of claim 37, where the MDA-5 protein comprises a protein having an amino acid sequence as set forth in SEQ ID NO:2.

39. The method of claim 34, wherein the agent is a MDA-5 protein.

40. The method of claim 39, where the MDA-5 protein comprises a protein having an amino acid sequence as set forth in SEQ ID NO:2.

41. The method of claim 32, wherein the agent is an *mda*-5 nucleic acid, in expressible form.

42. The method of claim 41, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

43. The method of claim 41, wherein the *mda*-5 nucleic acid comprises a nucleic acid which is capable of hybridizing, under stringent conditions, to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

44. The method of claim 33, wherein the agent is an *mda*-5 nucleic acid, in expressible form.

45. The method of claim 44, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

46. The method of claim 44, wherein the *mda*-5 nucleic acid comprises a nucleic acid which is capable of hybridizing, under stringent conditions, to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

47. The method of claim 34, wherein the agent is an *mda*-5 nucleic acid, in expressible form.

48. The method of claim 47, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

49. The method of claim 47, wherein the *mda*-5 nucleic acid comprises a nucleic acid which is capable of hybridizing, under stringent conditions, to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element active in a cell of the subject.

50. The method of claim 32, wherein the agent increases the activity of an *mda*-5 promoter and is not an interferon.

51. The method of claim 50, wherein the agent is tumor necrosis factor alpha.

52. The method of claim 50, wherein the agent is poly(I)(C).

53. The method of claim 33, wherein the agent increases the activity of an *mda*-5 promoter and is not an interferon.

54. The method of claim 53, wherein the agent is tumor necrosis factor alpha.

55. The method of claim 53, wherein the agent is poly(I)(C).

56. The method of claim 34, wherein the agent increases the activity of an *mda*-5 promoter.

57. The method of claim 56, wherein the agent is an interferon.

58. The method of claim 56, wherein the agent is beta interferon.

59. The method of claim 32, wherein the agent increases the RNA degradation activity of MDA-5 protein.

60. The method of claim 32, wherein the agent increases the ATPase activity of MDA-5 protein.

61. A method of inhibiting cell proliferation in a cell population comprising administering, to the cell population, an effective amount of an MDA-5 protein.

62. The method of claim 61, wherein the cell population comprises cancer cells.

63. The method of claim 61, wherein the MDA-5 protein comprises a protein having the sequence set forth as SEQ ID NO:2.

64. The method of claim 62, wherein the MDA-5 protein comprises a protein having the sequence set forth as SEQ ID NO:2.

65. The method of claim 61, further comprising administering, to the cell population, an effective amount of an interferon.

66. The method of claim 65, further comprising administering, to the cell population, an effective amount of mezerein.

67. A method of inhibiting cell proliferation in a cell population comprising administering, to the cell population, an effective amount of an *mda*-5 nucleic acid in expressible form.

68. The method of claim 67, wherein the cell population comprises cancer cells.

69. The method of claim 67, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element.

70. The method of claim 67, wherein the *mda*-5 nucleic acid comprises a nucleic acid which hybridizes to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element.

71. The method of claim 68, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element.

72. The method of claim 68, wherein the *mda*-5 nucleic acid comprises a nucleic acid which hybridizes to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element.

73. The method of claim 67, further comprising administering, to the cell population, an effective amount of an interferon.

74. The method of claim 67, further comprising administering, to the cell population, an effective amount of mezerein.

75. The method of claim 68, further comprising administering, to the cell population, an effective amount of an interferon.

76. The method of claim 68, further comprising administering, to the cell population, an effective amount of mezerein.

77. A method of inhibiting tumor growth in a subject comprising administering, to the subject, an effective amount of an MDA-5 protein.

78. The method of claim 77, wherein the cell population comprises cancer cells.

79. The method of claim 77, wherein the MDA-5 protein comprises a protein having the sequence set forth as SEQ ID NO:2.

80. The method of claim 78, wherein the MDA-5 protein comprises a protein having the sequence set forth as SEQ ID NO:2.

81. The method of claim 77, further comprising administering, to the subject, an effective amount of an interferon.

82. The method of claim 77, further comprising administering, to the subject, an effective amount of mezerein.

83. A method of inhibiting tumor growth in a subject comprising administering, to the subject, an effective amount of an *mda*-5 nucleic acid in expressible form.

84. The method of claim 83, wherein the cell population comprises cancer cells.

85. The method of claim 83, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element.

86. The method of claim 83, wherein the *mda*-5 nucleic acid comprises a nucleic acid which hybridizes to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element.

87. The method of claim 84, wherein the *mda*-5 nucleic acid comprises a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element.

88. The method of claim 84, wherein the *mda*-5 nucleic acid comprises a nucleic acid which hybridizes to a nucleic acid having a sequence as set forth in SEQ ID NO:1, and is operably linked to a promoter element.

89. The method of claim 83, further comprising administering, to the cell population, an effective amount of an interferon.

90. The method of claim 83, further comprising administering, to the cell population, an effective amount of mezerein.

91. The method of claim 84, further comprising administering, to the cell population, an effective amount of an interferon.

92. The method of claim 84, further comprising administering, to the cell population, an effective amount of mezerein.

93. An isolated *mda*-5 nucleic acid having a sequence as set forth in FIGURE 9 (SEQ ID NO:4).

94. A method of sensitizing a cell to a growth-inhibitory effect of a protein kinase C inhibitor, comprising increasing the level of MDA-5 protein activity in the cell and administering, to the cell, a protein kinase C inhibitor.

95. A viral vector comprising a first cancer-inhibitory gene operably linked to a promoter selectively active in cancer cells, and further comprising a second cancer-inhibitory gene operably linked to a *mda*-5 promoter.

96. An isolated protein comprising a protein having an amino acid sequence as set forth in FIGURE 10 (SEQ ID NO:7).

97. An isolated nucleic acid comprising a nucleic acid having a nucleic acid sequence as set forth in FIGURE 11 (SEQ ID NO:8).

98. An isolated protein comprising a protein having the amino acid sequence as set forth in FIGURE 12 (SEQ ID NO:9).